estimating the contributions of heredity and environment to a given quantitative character, using height and intelligence as type examples. This is followed by a chapter on linkage in which the authors present Penrose's sib-pair methods of linkage detection (the Fisher-Finney method is considered too difficult, mathematically, for most readers) and a discussion of the unlikelihood that common genetic markers linked to pathological genes will be of any immediate practical use for genetic prognosis. In the next chapter the estimation of mutation rates and the problem of induced mutation in man are discussed clearly and critically.

After a section on physiological genetics dealing with a number of inherited metabolic defects in man, the reader reaches the meat of the book, "The Estimation of Genetic Parameters and Tests of Genetic Hypotheses". The use of the maximum likelihood method of estimation is demonstrated for a number of genetic situations (two and three autosomal alleles without and with dominance, sex-linked alleles, two pairs of alleles), and the use of χ^2 as a test of goodness of fit is illustrated. Here the mathematics becomes quite heavy, for which the authors make no apology, believing that "... a knowledge of certain branches of mathematics is no less essential to the serious student of human heredity than to the astronomer...". The reviewer has not attempted to check the formulae or calculations. The following chapter deals efficiently with the knotty problem of ascertainment, though the difficulties involved are not dealt with as thoroughly as in a recent article of Schull's, which the authors have modestly omitted even from the bibliography. After some more advanced algebra the chapter concludes with a warning that it is no use applying fancy statistics to data that are inadequate, either through improper collection or insufficient understanding of the biological situation.

The chapter on population genetics deals with the frequencies of genes of universal distribution (e.g., blood groups), and of genes of restricted distribution (such as those for Thalassemia and the sickling phenomenon), and discusses the factors influencing these frequencies. Due note is taken of the possible errors and biases in estimating these factors, but the authors are optimistic about the potential contributions of research in this field to our understanding of anthropological problems. On the other hand, in the following chapter, they are pessimistic about the value of twin studies as a means of appraising nature-nurture interaction.

The final section of the book deals with the practical aspects of human genetics as applied in the fields of epidemiology, counselling, forensic medicine and eugenics. The authors have presented a cautious critical and constructive appraisal of the contributions of genetics in these fields, and this could be read with profit by doctors, social workers and others who have to deal with human families and their genetic problems, or who are otherwise concerned about the future of the human species. The book ends on a characteristic note of caution—the suggestion that "the effort which would be expended on a eugenics program might better go into efforts to explore the many gaps in our present fragmentary information."

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The Unleashing of Evolutionary Thought

By Oscar Riddle. New York: Vantage Press. 1954, Pp. 414, $4.50.

This essay was born of a firm conviction that the attitudes and goals of society everywhere would be vastly matured by general acceptance of the concept of evolution. Since Dr. Riddle realizes that this conviction is shared by most scientists the book is primarily an explanation of why evolution is not more generally accepted. Nor is the book directed to scientists alone. It is written for "your neighbors and mine" who "are wholly unprepared to give thought to the things that would flow from a widely accepted view of the natural origin of man, of his biological and social nature, of the animal and social sources of morality, and of a world rid of the supernatural." For this reason Part I entitled "What Evolutionary Thought Is" has been added. The various chapters in this section cover such topics as, "The Problem of Creation", "Evolution and Ethics", "The Biological Inequality of Man". It may be seen that these are the everyday ideas which are most likely to be modified by an understanding of evolution in its broadest sense. For example, in the chapter entitled "Social Inheritance" Riddle lists three present day dangers. First, modern technological civilization fails to consider

sufficiently the biological exigencies of man. Second, organized religions hinder understanding of man's biological origin. Thus he is prevented from making sound plans for the future of society. Third, overpopulation brings into even sharper focus the need for application of eugenic measures.

It is curious that Dr. Riddle lists these dangers in this order for it has already become abundantly clear that the second is the main thesis of this book. Part II, the longest and most detailed, is called "Reins Held by Religion." Here is gathered an imposing mass of evidence to show that the organized religions hinder not only the dissemination of evolutionary ideas but also receptivity to these concepts. Riddle's most interesting contribution in Part II is his discussion of the manner in which evolution is taught in our secondary schools and universities. He is on firm ground here for he was chairman of a committee of the Union of American Biological Societies which studied the teaching of evolution in high schools of the United States. There is no gainsaying that the information obtained by this committee indicates that religious reasons, above all others, are at the basis of the gingerly way in which evolution is approached in our schools and colleges.

The third part "Opinion and Outlook" reaches strong, all-embracing conclusions. Dr. Riddle spares no religion here or abroad in fixing responsibility for the widespread ignorance of evolution and its implications.

Many, if not most, of the ideas herein have been published before. Many readers may think that the emphasis on religion is misplaced; that human nature resists evolutionary ideas because they are uncomfortable or disquieting for other reasons. Some will feel that the cogency of Dr. Riddle's argument is lost in a somewhat leaden style. These criticisms however, do not detract from the overall worthiness of his premises.

This book is not a pleasant one because Dr. Riddle does not spend much time being merely optimistic. He presents very little evidence that indicates any progress in the "pressing conflict" between belief in the supernatural and belief in what science can tell us about ourselves. Nevertheless, despite the mass of gloomy documentation one never entirely loses sight of Dr. Riddle's fundamental faith in man's "good purposes" and his "earnest doubts."

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